

CyberChallenge.IT 2026

Programming Test

Palindromic substrings [80 points]

Problem Statement

You are given a string s of uppercase letters, that can be written in characters as $s_0s_1s_2\dots$. You need to answer a series of queries of the following form: given two non-negative integers a and b , is it possible to rearrange the letters in the substring $s_a s_{a+1} \dots s_{b-1} s_b$ to form a palindromic string?

Note: a string is called palindromic if the string obtained by reversing it is the same as the original one.

Problem Details

It is guaranteed that $a < b$ for each query, and that both of them are less than the length of the string s . Notice that both a and b are included in the substring and that indexing starts from 0.

Input

The input consists of $3 + q$ lines:

- Line 1: the length of the string s
- Line 2: the string s itself
- Line 3: the number of queries q
- Lines 4, ..., $3 + q$: two space separated integers, a and b , for each line

Output

The output consists of q lines, each containing the string YES, if such rearrangement exists, or NO, if it does not.

Scoring

Your program will be tested on a number of testcases grouped in subtasks. In order to obtain the score associated to a subtask, you need to correctly solve all its testcases.

Denoting with L the length of s :

- **Subtask 1** [20 points]: $L \leq 500, q \leq 200$
- **Subtask 2** [30 points]: $L \leq 10^5, q \leq 10^3$
- **Subtask 3** [30 points]: $L \leq 10^6, q \leq 10^6$

Examples

INPUT	OUTPUT
10	YES
AZAZBBBCC	YES
6	YES
0 4	NO
7 9	YES
4 9	NO
2 7	
8 9	
1 8	

Explanation

- The first substring is AZAZB, which can be rearranged as AZBZA to become a palindrome string, so the answer is YES.
- The second substring is BCC, which can be rearranged as CBC to become a palindrome string, so the answer is YES.
- The third substring is BBBCC, which can be rearranged as BCCBB to become a palindrome string, so the answer is YES.
- The fourth substring is AZBBBB, which cannot be rearranged to become a palindrome string, so the answer is NO.
- The fifth substring is CC, which already is a palindrome, so the answer is YES.
- The sixth substring is ZAZBBBCC, which cannot be rearranged to become a palindrome string, so the answer is NO.